REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
16 May 2003	FINAL	

4. TITLE AND SUBTITLE
DEVELOPING SEA POWER 21 FOR AMERICA'S NEXT MARITIME CONFLICT

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)
LT COL JAMES J. BUCKLEY, USMC

Paper Advisor (if Any): PROF J.R. BALLARD, JMO DEPT, NWC, NEWPORT, RI

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Joint Military Operations Department
Naval War College
686 Cushing Road
Newport, RI 02841-1207

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

PROF J.R. BALLARD NAVAL WAR COLLEGE, NEWPORT, RI

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT
Distribution Statement A: Approved for public release; Distribution is unlimited.

13. SUPPLEMENTARY NOTES A paper submitted to the faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.

14. ABSTRACT

Thesis: The Department of the Navy's strategic vision, *Sea Power 21*, fails to address adequately America's future power projection and forcible entry requirements; thus, it will not effectively counter the People's Liberation Army in a 2020 maritime conflict across the Taiwan Straits.

Discussion: At present, America's maritime and forcible entry capabilities are based on legacy systems and ambiguous judgments with respect to the future. Future force requirements, however, will never be realistically achieved unless there is a reasonable sense of the nation's future military adversaries. To focus the nation's maritime requirements, a Sino-American conflict over Taiwan is considered. Concluding that China is seriously considering the employment of military force against Taiwan, and that America's counter action will be the employment of military force, this paper initially focuses on anticipating the People's Republic of China's (PRC) future capabilities to successfully seize Taiwan. With the PRC's military capabilities forecasted, the paper then presents a viable 2020 war scenario – China's use of force to seize Taiwan and America's military response to prevent it. From this analysis, the paper identifies and comments on America's future maritime power projection and forcible entry requirements.

15. SUBJECT TERMS
Sea Power 21; People's Liberation Army (PLA); China; Taiwan; Forcible Entry; Power Projection; Anti-Access; Joint Warfare; Future War

16. SECURITY CLASSIFICATION OF: UNCLASSIFIED			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Chairman, JMO Dept
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED		29	19b. TELEPHONE NUMBER *(include area code)* 401-841-3556

Standard Form 298 (Rev. 8-98)

Unclassified

NAVAL WAR COLLEGE
Newport, R.I.

DEVELOPING SEA POWER 21 FOR AMERICA'S NEXT MARITIME CONFLICT

By

James J. Buckley
Lieutenant Colonel, USMC

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Joint Military Operations Department.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

16 May 2003

_____

Faculty Advisor
Professor John R. Ballard

Abstract

DEVELOPING SEA POWER 21 FOR AMERICA'S NEXT MARITIME CONFLICT

Thesis: The Department of the Navy's strategic vision, *Sea Power 21*, fails to address adequately America's future power projection and forcible entry requirements; thus, it will not effectively counter the People's Liberation Army in a 2020 maritime conflict across the Taiwan Straits.

Discussion: At present, America's maritime and forcible entry capabilities are based on legacy systems and ambiguous judgments with respect to the future. Future force requirements, however, will never be realistically achieved unless there is a reasonable sense of the nation's future military adversaries. To focus the nation's maritime requirements, a Sino-American conflict over Taiwan is considered. Concluding that China is seriously considering the employment of military force against Taiwan, and that America's counter-action will be the employment of military force, this paper initially focuses on anticipating the People's Republic of China's (PRC) future capabilities to successfully seize Taiwan. With the PRC's military capabilities forecasted, the paper then presents a viable 2020 war scenario – China's use of force to seize Taiwan and America's military response to prevent it. From this analysis, the paper identifies and comments on America's future maritime power projection and forcible entry requirements.

TABLE OF CONTENTS

Developing Sea Power 21 for America's Next Maritime Conflict

However strong a combat capability, an Army unit does not have any combat capability before entering its position.

General Sy Yu, People's Liberation Army

The Department of the Navy's (DON) strategic vision, *Sea Power 21*, fails to address adequately America's future power projection and forcible entry requirements; thus it will not effectively counter the People's Liberation Army (PLA)[1] in a 2020 maritime conflict across the Taiwan Straits. This failure is a result of three factors. First, there is ample evidence to support the argument the PRC is considering the use of military force as a means to reunify Taiwan with mainland China. Second, if the PRC employs military force to recover Taiwan, America's anticipated counteraction will be the use of military force against the PRC. From these first two points, it is reasonable to deduce that for American maritime planners, a Sino-American military conflict over Taiwan is a serious concern.[2&3] Such a conclusion leads to the third point: The reduced availability of advanced bases for the reception, staging, onward movement and integration (RSO&I)[4] of U.S. forces – i.e., fixed forward air fields and ports – presents a significant and long-term challenge to America's strategic reach and influence. While the DON is attempting to outline a solution for this dilemma with the release of *Sea Power 21*, the concept simply fails to support the development of a military response in case of such a Sino-American confrontation. The reason is the concept is presently both ambiguous and "capabilities based." Thus, *Sea Power 21* in its present form is nothing more than a grouping of clichés that provide neither clear direction nor vision.[5]

How then can the DON get beyond this untenable position? To prepare for future wars, America's maritime forces must anticipate and plan for the most challenging and realistic missions the nation might assign them. This way, the DON's anticipated requirements can be validated against anticipated real-world "threat based" scenarios. Only then can America adequately

focus, finance, build, and ultimately depend on its maritime capabilities. If one looks beyond the present situations in Iraq and Korea, the assertion may be made that no other potential military crisis is more likely to involve U.S. maritime forces in a major conflict than Taiwan. Moreover, Taiwan is one of the few potential flashpoints where the operational environment is uniquely maritime.[6]

This paper intentionally presents a *broad* assessment of the PLA's military perceptions, anticipated power projection capabilities and operational intentions in order to project the necessary capabilities for America's maritime power projection and forcible entry operations. The paper avoids detailed discussion that compares PLA, Taiwan and American force structures, platforms and weapon systems.[7] Rather, the analysis remains focused on operational concepts and capabilities the PLA has, or is attempting to achieve, and the operational capabilities and requirements the U.S. maritime forces need to maintain or develop in order to retain a decisive advantage.[8] Finally, when speculating on China's future power projection capabilities, it must be emphasized that the capabilities discussed herein are not necessarily *what China will* have fifteen years hence; rather it is a realistic assessment of what capabilities *China would like to have* based on its past and present trends.[9] The overarching aim of this paper, therefore, is to chart the appropriate direction for *Sea Power 21* to insure that the U.S. can prevail over the PLA in a conflict regarding Taiwan.

The PLA – Building the Maritime Capabilities to Invade Taiwan

The Chinese believe they will have one chance to subjugate Taiwan by force, and if they decide on military action their aim is to succeed in relatively short order.[10] Therefore, the Chinese will not attempt an invasion until they are confident that they have overcome their current power projection and anti-access limitations. Today the PLA can be classified as an antiquated land force in the early transition phase to a modern maritime capable force. Thus, for the next

several years a PLA invasion would be a very risky prospect that would most likely fail. Against Taiwan's small but more modern forces the PLA would be incapable of achieving air or naval superiority before the U.S. would intervene with its superior air and maritime forces; and once the U.S. intervened, most analysts speculate that a PLA invasion force would be destroyed well before it could establish itself on Taiwan. Therefore the PLA understands that they will require more than the ability to cross the Taiwan Straits with an invasion force – they will need to achieve sufficient air and sea control within the theater to dominate the critical parameters of the battlefield, and to isolate likely external support to Taiwan. Today, according to many analysts, the PLA's most significant maritime shortfalls, vulnerabilities and concerns include:[11]

- A more robust and modern surface fleet capable of air and sustained "blue water" operations.
- Reliable fleet air cover to include all-weather capable fighters, ground attack platforms, AWACS, early-warning aircraft and aerial refueling platforms.[12]
- More modern anti-submarine warfare and reliable ship-borne air defense capabilities.
- A more modern and capable submarine fleet that includes advanced nuclear and diesel platforms and accompanying advanced weapons systems.[13]
- A larger and more capable inventory of amphibious ships and landing platforms.
- More capable air and surface precision guided munitions systems.
- More reliable Command & Control (C2) capabilities and the ability to execute "joint" operations.
- Skill and training in planning and executing large-scale joint amphibious operations while significantly expanding its military education/training revolution to include the upgrading of all the ground combat units to the high standards that now prevail in Chinese "Fist" units.[14&15]

While the list of PLA requirements is significant, over the past decade methodical planning and reforms have gained the PLA significant progress in organization, doctrine, education and training. Slowly, it is bridging the technology and capabilities gap with both Taiwan and the United States. Many analysts anticipate that within the next 15 years the maritime and power-projection shortfalls of the PLA will be rectified to the point where a successful cross-channel invasion is achievable.[16] Concurrently, the PLA is building a force to contend with the U.S. in a broadening range of situations.

Closing the Sino-American Technology andCapabilities Gap

Presently and at least for the near future, the PLA's principle source of sophisticated military technology and hardware comes from Russia.[17] Since most Chinese weapons are based on Russian designs, this is the most cost effective and least complicated near-term approach to integrate modern arms technology into their forces. At the same time, China's leaders are well aware of the importance of self-reliance on weapons modernization; thus, the PLA's long-term plan is to provide its own equipment and apply foreign technology judiciously wherever necessary.

China is purposefully avoiding large scale imports and is concentrating on importing limited quantities of high-tech systems so that they can "reverse engineer" with the intent to understand and improve upon these systems. Particular emphasis is being directed to the following areas: electronics; telecommunications; missile guidance systems; air defense; mobility systems; naval platforms (both surface and subsurface) and aviation systems. Once the PLA is satisfied with its new technologies, it then intends to mass-produce.[18]

Even as they reverse engineer foreign systems and technologies, their military production facilities are not sitting idle. Rather, the majority of China's defense factories are geared to manufacture consumer items such as automobiles and other high-tech goods. In addition, there are selected factories and research centers that continue to modernize in order to become a source of state-of-the-art weapons that can be mass produced in all their military production facilities. To keep the capabilities of their labor force in stride with their technology transfers, each year the PRC sends thousands of Chinese students and technicians abroad – particularly to Russia – where they work side-by-side with design and production engineers in order to gain an in-depth understanding of advanced technologies.[19]

To insure a successful invasion, the PLA is concentrating and implementing its formed policy on two vital operational objectives: First, it is working on concepts and systems to con-

trol, transport, land and sustain sufficient forces onto Taiwan in order to defeat Republic of China (ROC) resistance. Second, the PLA is developing the necessary plans and systems to ensure it controls the air and sea surrounding Taiwan. This second objective includes well-defined asymmetrical and sophisticated concepts to disrupt American forces so that the U.S will be incapable of both influencing actions on Taiwan, and of being incapable of impacting actions across the Taiwan Straits to mainland China.[20]

PLA Perceptions of U.S. Military Capabilities and Vulnerabilities

In contemplating an offensive against Taiwan, China's principal concern is intervention by the U.S. The success of U.S. led military campaigns and operations over the last twelve years – through the employment of precision munitions, advanced C2 systems, superb intelligence systems, and significant sea and airlift capabilities – have and continue to maintain an indelible impression on the PLA's leadership.[21] The invasion plans they develop will therefore have detailed contingencies to deal with an anticipated U.S. intervention.

Drawing on Operations Desert Storm and Iraqi Freedom as recent demonstrations of how America projects its power and establishes forces within a theater of operations, China has drawn a few indelible perceptions about the U.S. military's capabilities and vulnerabilities. On the one hand, the PLA understands that once the U.S. establishes itself within a theater; it is undoubtedly the most modern and capable military force in the world. On the other hand, in response to a major regional crisis, the U.S. must transit and sustain itself along extended lines of operation. The U.S. also depends heavily on benign ports and airfields within the theater for the introduction of a significant portion of its combat power and logistics. Moreover, months are required for the U.S. to complete large-scale deployments and make final preparations for battle.[22]

The PLA expects the situation will be no different if a war occurs in the Western Pacific. It predicts the available American forces forward deployed in the region will be limited to the

70,000 servicemen stationed on Japan, and at most three carrier battle groups accompanied by three Marine Expeditionary Unit-sized amphibious ready groups as well as a number of reinforcing Air Force fighter squadrons.[23] Therefore, the PLA assumes the majority of America's military power will transit the oceans from CONUS. To compound the situation for the U.S., with the exception of Japan and Guam, America's permanently acknowledged forward staging bases in the Western Pacific have significantly declined over the past several years; and the staging bases on Japan fall within range of Chinese missiles systems.[24]

To exploit this vulnerability, many analysts believe the PLA will fight unconventionally – targeting America's extended lines of communication (LOCs) to disrupt and attrite U.S. forces before they reach the theater. This action will delay America's advance and it will create pressure on the deploying U.S. forces to guard their LOCs with combat power initially designated for the Taiwan theater. Moreover, the PLA will attempt to deny the U.S. secure access to ports and airfields on Taiwan.

Finally, when analyzing the PLA's maritime strengths, intentions, and perceptions of war, it is important not to simply compare China's maritime capabilities against those of the U.S. since it is unlikely the PLA is setting out to match America's navy, ship-for-ship. Rather, its maritime force is being designed to accomplish an asymmetrical strategy -- striking against America's vulnerabilities instead of confronting its strengths head-on. For example, modern ballistic missiles, aircraft, diesel submarines and small gunboats equipped with sophisticated anti-ship systems can sink American aircraft carriers and other critical U.S. naval vessels.[25] Thus, for the PLA a modern "U.S. style" blue water fleet is neither required nor desired. This logic provides reason why the PLA is placing so much emphasis on modernizing their submarine fleet. To the PLA, a less-than-conventional structure makes much more sense because it is designed to

accomplish Chinese maritime goals without the development of a force structure matching those of the U.S. Navy.[26]

Thus, based on current trends and anticipated progress inside the PLA, it is likely that within the next 15 years China's maritime power projection capabilities will be greatly enhanced, but by western standards it might still appear somewhat limited. Keep in mind, however, that within China's theory of war, there remains a guiding philosophy that, *"the strongest does not necessarily win final victory, with the wisest philosophy of war and the best battle strategy and tactics being the only magic weapons for winning ultimate victory."*[27] Recalling how China entered the Korean War in the late fall of 1951, it can be expected that the PLA will use cunning in any military action against Taiwan -- employing conventional and asymmetrical theories as well as surprise to offset China's technological and qualitative deficiencies. *How might the PLA invade Taiwan while simultaneously interdicting the introduction of U.S. forces?*

A 2020 PLA Invasion of Taiwan

Regardless of the specific operational concept, the PRC believes once the war starts it cannot afford to lose. Most Chinese analysts speculate that losing the war would mean the loss of Communist rule in China. The PLA, therefore, will throw all of its might into making the victory quick and certain. In planning for a future invasion, China is fully aware that the longer Taiwan holds out, the more likely U.S. intervention becomes. The PLA assumes the opposite is also true. Both the U.S. and the United Nations recognize the *"One China Policy*"; therefore, if the PLA can secure Taiwan before the U.S. can come to the aid of Taipei, U.S. military intervention becomes unlikely.[28] This assumption is a key aspect of its operational plan. Therefore, the Chinese military planners will prefer the rapid deployment of overwhelming combat power to reduce the time and opportunities available for outside support. As suggested by Zeng Liang-

Ping, a Chinese military analyst, the PLA is likely to adopt an operational concept against Taiwan that includes:

> A precision high speed first strike using highly technical weapons and crack units…with firepower capable of direct strike at the very heart of the enemy's command and logistical systems, thus destroying the enemy's capability to fight with organized resistance .... The PLA will insert a small number of crack units onto Taiwan to coordinate with outside forces, with many crack units infiltrating to assault key military targets and political nerve centers, while high-tech precision weapons quickly and accurately destroy the eyes and ears and communications of the defense system, thus paralyzing Taiwan's command and control network. This would achieve the objective of using a small number of forces to destroy organized resistance. The PLA could [then] transport a larger force to Taiwan and carry out the actual occupation of the island.[29]

When planning the invasion, China's strategic planners will likely consider a massive sea borne invasion of Taiwan's west coast as impractical, too costly and too predictable since an amphibious assault there would run head-long into Taiwan's best ground and coastal defenses. And after heavy fighting on the beaches, the PLA would still have to fight their way inland and north to Taipei.[30] Taiwan's east and northeast coasts, on the other hand, with their limited landing beaches and steep and challenging terrain, are significantly less defended.[31] Therefore, a *combined* airborne and amphibious assault penetrating Taiwan's northeast coast is the PLA's most likely and most dangerous course of action.

The primary reason behind a combined air and seaborne invasion plan is Chinese planners realize that the preparation and staging for a large-scale amphibious invasion will take months, and will require a large build-up of amphibious forces in their coastal ports. If too large it would tip the PLA's hand, and as a result it would negate the critical element of surprise. It would also forewarn Taiwan and its allies, particularly the United States. On the other hand, a balanced air and seaborne attack will be more easily masked. The staging of a limited number of amphibious forces forward could be overlooked as "just another PLA naval exercise," and the airborne forces could be staged deep inside China, and would not require much obvious preparation. The combined air and surface assaults will likely be focused on establishing critical beachheads and securing decisive terrain such as vital Taiwanese military centers on the *Hualien-*

Suao-Ilan Plain like the underground *Jiashan Air Base* as well as key ports and airfields to deny their potential use by U.S. forces.[32] An even bolder concept the PLA might adopt is a *coup-de-main* focused directly at toppling Taiwan's strategic center of gravity – the ROC Government in Taipei.

Regardless of the specific operational concept, air and naval superiority of the Taiwan Strait will be of absolutely vital importance. To neutralize the Taiwanese air and anti-air missile defenses, a PLA top priority will be to blind Taiwan's chain of radar stations and confuse air control, missile and other electronic defense systems. To do so, PLA will launch disabling strikes with global positioning systems (GPS) and laser guided short-range ballistic missiles against airfields, surface-to-air missiles sites, and other important Taiwanese defense systems. With their improved intermediate range ballistic missile systems, China will target operationally significant targets such as critical road and rail links, vital communication centers, and key military facilities such as Taiwan's Combat Air C2 Center at *Kung Kuan* and the Combined Operations Center at *Yuanshan*.[33]

Taiwan's infrastructure and defenses will be further disrupted by unconventional methods. With the over 50,000 illegal immigrants from the Chinese mainland that have arrived on Taiwan over the past 15 years, it cannot be ruled out that a significant number of PLA agents have also infiltrated onto the island. These "fifth columnists" will not only weaken and distract the ROC's fighting strength, but will also create problems by causing confusion within the Taiwan interior and among Taiwan's people.[34]

If the PLA's initial strikes are successful, it will follow with additional air and missile strikes in support of its pre-planned sea and airborne assaults.[35] The purpose of the initial air and surface assaults will be to seize key beachheads, ports and air facilities such as the *Jiashan Air Base* in order to deny their access to the U.S. and to prevent the employment of Taiwan's strate-

gic reserve fighter aircraft preserved within underground shelters.[36] With these objectives neutralized, the PLA will then establish forward bases on Taiwan for airlifting supplies and reinforcements using both military and civilian passenger aircraft. At the same time, China's amphibious fleet, under the escort of surface and subsurface warships as well as air cover, will land forces to secure designated beaches on the island's northeast coast. After beachheads are established, the PLA will then transport additional combat power to include troops and heavy equipment ashore.

With key airfields and ports secure, lodgment established, and a link-up by airborne and amphibious forces complete, the next objective will be to the northwest to the dominating heights that over-watch Taipei.[37] Through an effective naval blockade and the continued barrage by missiles and aircraft against the remaining Taiwanese defense facilities, the surrender of Taipei will only be a matter of time. Again, a very critical element within this plan is to quickly secure the island, while American forces are kept at a distance.[38]

Interdicting The United States

While China's attack on Taiwan will be conventional in nature, their interdiction or "anti-access" strategy against the U.S. will remain within their capabilities and thus, will be significantly less conventional. As mentioned, a critical aspect of the PLA's plan is to keep foreign intervention isolated from the conflict, as it knows that the U.S. maritime forces pose the greatest threat in this respect. Therefore, to maintain U.S. maritime forces at a distance, China will use the bulk of its emerging blue water fleet to isolate the theater.

China understands that American forces are most vulnerable when they are mobilizing, moving to their forward assembly areas, and are at the extreme reach of their logistics tail. "*An effective strategy by which the weaker party can overcome its more powerful enemy is to take advantage of serious gaps in the deployment of forces by the enemy with a high-tech edge by*

launching preemptive strike during the early phase of the war or in the preparations leading to the offensive."[39] Using unconventional maritime tactics, China intends to disrupt America's mobilization, cohesion and design for battle by interdicting U.S. forces as they deploy to the theater. Further, the PLA will either seize or neutralize key Taiwanese ports and airfields in order to deny their use by U.S. forces.

Therefore, even before hostilities commence, the U.S. can anticipate the PLA to position its blue water assets -- to include its long range nuclear submarines and one or more of its new carrier battle groups -- as an interdiction force as far east as the Pacific's "second island chain."[40&41] These forces will be tasked to engage and disrupt approaching U.S. maritime assets with air, surface and submarine-launched anti-ship missile systems. PLA Naval platforms reinforced with sea mines might also prepare to restrict key choke points leading from the South China Sea and Indian Ocean.[42] U.S. military facilities on Japan, Guam and other forward and intermediate staging bases will be targeted to include critical U.S. Seventh Fleet platforms such as carriers and Aegis class cruisers in Japan, unprotected Amphibious Ready Groups deployed within the region, and U.S Maritime and Army Pre-Positioned Shipping located off the islands of Saipan and Diego Garcia. Then, as America's CONUS-based forces extend across the Pacific, the PLA's submarines will target their extended logistic tail. Of course, in preparing the depth of the theater for offensive operations, the PLA must remain leery of tipping its hand by displaying to the U.S intelligence community unambiguous warnings of an imminent attack.

Targeting U.S. maritime assets will have two significant impacts: First, it will delay the U.S. from rapidly introducing combat power into the theater; second, it will reduce available U.S. combat power within the theater since the U.S. will have to re-direct a disproportionate amount of its naval power to protect its transiting assets and to guard the sea-LOCs.

The Chinese will also employ unconventional methods to deal with American air power. Keeping their more sophisticated aircraft and surface-to-air missiles back to protect mainland China and their invasion forces on Taiwan, the PLA will forward deploy their longer range aircraft to attack critical "soft" targets such as American intermediate staging bases, J-Stars, AWACs, strategic lift, and aerial refueling platforms. This plan will further attrite and delay the U.S. advance by forcing the U.S. to protect the air-LOCs with surface and fighter assets previously designated for forward deployment.

Thus far this paper has focused on the PLA and their contemplation of a Taiwan invasion. At the outset, the paper presented an outline of the PLA's maritime shortfalls and the strategies designed to overcome them. Then the paper suggested a short and somewhat asymmetrical construct on how the PLA might attempt to secure Taiwan while simultaneously interdicting the United States in the case of a possible intervention. The purpose of this initial information was to frame the debate challenging the *Sea Power 21* concept as a deterrent to a possible threat on the part of the PLA. Specifically, consideration will now be given to where the *Sea Power 21* concept must go with respect to the U.S.'s power projection and forcible entry capabilities.

Where the U.S. Is and Where *Sea Power 21* Must Go

Without significant attention paid to America's power projection and forcible entry capabilities, it is certainly conceivable that by 2020 China could seize Taiwan while simultaneously executing an effective anti-access campaign against America's maritime forces. On the one hand, *Sea Power 21* acknowledges that America's future adversaries will attempt a sea denial strategy to prevent American forces secure access to critical areas such as Taiwan.[43] On the other hand, there is no published evidence to support Admiral Clark's claim that *Sea Power 21* is "a clear vision of how our Navy will organize, integrate and transform." What has been published on the subject thus far is too generic and provides no such vision on which direction the

naval force should take. Presently the *Sea Power 21* theory is just that – a theory. As such it must move from a proposed explanation whose status is still conjectural to an operational concept that focuses realistically on the nation's maritime strengths, efforts and capabilities.

As the Taiwan scenario clearly highlights, the emerging strategic environment demands a "transformation" of the traditional U.S. approach to power projection and forcible entry. The first and most crucial step in developing *Sea Power 21* is to expand the concept beyond the Navy to one that unifies the efforts of all the Services. The reason is forcible entry and power projection must be viewed as a "single-battle" that expands the entire depth of the littoral, rather than a split-battle space concept that essentially ends for the Navy and begins for the rest of the Services at the high water mark. Contrary to what *Sea Power 21* suggests, sea power by itself is not the projection of power. Rather, sea power provides the *preconditions* for the projection of power.[44] For example, during World War II sea power made it possible for the Allies to invade Normandy and impossible for Germany to invade England. However, the allies still had to attack inland for the war to be won. The case of Taiwan is no different. Even if the Navy could establish sea control from the U.S. to Taiwan, it is not enough to win the conflict. If America cannot influence the action on the ground, then it is unlikely that America can prevent China from achieving its aim. Based on its very essence and intention, therefore, *Sea Power 21* must be a joint maritime venture that incorporates the Marine Corps as well as the Army and Air Force.[45]

As mentioned, one of America's emerging vulnerabilities to a large-scale crisis response is its ability to quickly project and sustain combat power in the absence of a forward land base network for U.S. air and sea points of debarkation (APOD/SPOD). While the U.S. has successfully relied on secure forward land base networks for the past century, as the Taiwan scenario suggests, the changing strategic environment is rapidly making this option untenable.

Considering China's anticipated anti-access strategy, the limited number of U.S. forward bases and the vast space involved, America's power projection and forcible entry capabilities are at significant risk. Certainly future adversaries will exploit these vulnerabilities as economic means for denying the U.S. unhindered access into a theater.[46] In other words, America's power projection and forcible entry capabilities – aspects once considered critical requirements within America's maritime arsenal – have suddenly become significantly less effective. Before addressing the operational requirement for *Sea Power 21*, the paper will first endeavor to show how the U.S. currently projects its military power in response to a major crisis.

In simple terms, U.S. forces are deployed, employed and sustained in distinct "joint echelons." Each of these echelons possesses different operational characteristics and capabilities; therefore, each requires varying degrees of infrastructure – in particular ports, airfields and fixed bases to deploy, organize and operate. America's "first operational echelon" can be classified as the fast-reacting, early-arriving forces that include capabilities such as the Navy and Marine Corps' Amphibious Ready Groups and Carrier Battle Groups, the Army's ranger, SOF and airborne forces, and the Air Force's long-range strategic bombing forces. This combined fighting strength is organized and equipped to operate in austere environments that are devoid of significant infrastructure. Serving as the first significant elements of U.S. military response, these forces are capable of rapid force closure in response to a crisis, but are limited by power projection and forcible entry potential in terms of both endurance and combat power.

The "second operational echelon," deploys by sea and air in an escalating crisis to reinforce the first echelon. While these Joint forces are rapidly deploying, their critical and limiting factor is their dependence on gaining access to secure air and sea points of debarkation. Examples of today's second operational echelon include the Navy-Marine Corps Maritime Prepositioned Force (MPF) with accompanying Fly-In-Echelon forces, the Army's Afloat Prepositioned

Ships (AAPS) with accompanying Fly-In-Echelon forces, and the Air Force's Air Expeditionary Forces (AEF). However, as the Taiwan scenario highlights, access to fixed ports and air facilities will become increasingly challenging – quite possibly, even unlikely.

The final, or "third operational echelon" includes heavy, joint forces that deploy in response to mission requirements that exceed the capabilities of the first two operational echelons. Typically, these forces are the most robust and capable, but are also the most reliant on unimpeded access to major fixed facilities. Examples of third operational echelon forces include the Army's heavy armored and mechanized divisions, and the remainder of the Air Force's CONUS-based tactical fighter wings and larger supporting units.[47]

Although this "phased echelonment" concept has been effective in the past, the idea is becoming less practical as the post Cold War world evolves, since the relative ability of the first operational echelon to resolve major crises is diminishing in the face of growing regional powers such as China.[48] To compound the issue, the emergence of anti-access strategies of potential adversaries, such as the PLA, is jeopardizing the nation's ability to introduce subsequent forces into a theater via secure ports and airfields. *Accepting these truths, what then should be the aim of Sea Power 21?*

The logical and overarching aim for *Sea Power 21* must be to liberate *both* the first and second operational echelons from any reliance on forward ports, airfields and land bases. Only by significantly enhancing the power projection and forcible entry capabilities of the first two echelons will America possess a robust enough "enabling force" that is capable of defeating a determined anti-access strategy. Moreover, it is the only conceivable way to ensure the successful and timely introduction of America's heavy follow-on forces. Therefore, *Sea Power 21* demands a true Joint Force Concept that leverages joint experimentation opportunities but maintains the Naval Service as the concept's lead agent.[49]

In order to advance the *Sea Power 21* vision to the level of "Joint Enabler" with the capability to rapidly penetrate and defeat a PLA anti-access strategy, the concept first requires the full integration and acceptance of all the Services. For example, it demands an improved interaction between the Naval Service, Army and Air Force so *Joint Task Force capabilities are logically developed* to rapidly organize and project expeditionary air, land and naval forces with associated supplies and equipment into non-permissive environments. This interaction includes developing concepts and technologies that integrate and increase the speed, protection, survivability and capabilities of amphibious, MPS, AAPS, Air Mobility Command (AMC) and other essential platforms so that *a capable and robust Joint Task Force* can rapidly and effectively respond to a developing littoral crisis. The emerging strategic environment also demands the capability to achieve and maintain sea and air control from CONUS to objective while simultaneously maintaining a sizable and capable forward in-theater forcible entry capability. To accomplish this, the vision requires *definitive* concepts and resources such as the capability for at-sea arrival and assembly linkage of MPS and AAPS with their respective fly-in echelons. This "at-sea linkage" capability is vitally important, as it will enable the rapid organization, employment and forcible entry of second echelon forces *absent* forward ports and airfields. An effective counter-sea mine capability to include rapid in-stride mobility measures is essential in penetrating both conventional and asymmetrical anti-access strategies. The concept also demands the development and incorporation of enhanced Joint C2, intelligence and fire support architectures that provides a Joint Force Commander increased knowledge, range, accuracy and lethality. Moreover, this concept necessitates the capability to provide responsive logistics support for an operationally significant period of time to all elements of the Joint Task Force. This concept will also require standard joint designs and procedures for combat service-support functions such as refueling, ordinance, re-supply and maintenance.

To further expand on these ideas as well as to outline a far more understandable and visionary framework for *Sea Power 21*, the table at **Appendix A** lists by operational functions the principle requirements and capabilities the concept must achieve.[50] The table outlines both joint and maritime operational requirements. With the problem identified (*capability shortfalls within America's maritime power projection and forcible entry and an over-reliance on permanent fixed forward bases*), and an overarching viable solution outlined (*significantly reduce America's reliance on forward fixed ports and airfields while simultaneously enhancing the nation's power projection and forcible entry capabilities*) the appended table will assist maritime and joint planners in determining the feasibility of the proposed objectives, ideas and requirements. Considering the possible maritime capabilities of the PLA twenty years hence and the issues raised within this paper, with concerted focus the *Sea Power 21* concept is certainly worthy of further *Joint* study, discussion, evaluation, design, experimentation and procurement.

Conclusion

This paper explored America's strategic future concerning the Northeast Asia Region. It argues that America's most likely maritime opponent is the PRC, and that its strategic ambitions will one day directly collide with America's regional interests. If the two nations do go to war, Taiwan will most likely be the flashpoint. Projecting China's maritime capabilities twenty years hence, the paper unveiled America's maritime power projection capabilities, limitations and vulnerabilities. It concluded that without a serious re-evaluation and overhaul of America's maritime power projection and forcible entry resources and concepts, the U.S. will fall short when it faces a modernized PLA on the battlefield. However, considering what the *Sea Power 21* concept *can and should be,* America's ability to effectively counter a PLA invasion is certainly within reach. But first the DON must embrace *Sea Power 21,* not as merely a tactical gesture to make the naval service *appear* transitional and relevant, but rather that it should adopt the plan as

a strategic necessity and a unique opportunity to *lead* tomorrow's Joint Force. Of course, the thoughts and ideas outlined herein only suggest a modest point of departure for *Sea Power 21* to get beyond the current rhetoric of some of its proponents.

Appendix A

Operational Function	*Sea Power 21* Principle Requirements & Capabilities
Mobility & Maneuver	- Increased speed of contingency response. Capability to quickly project robust air, land, and maritime expeditionary forces with associated supplies and equipment into non-permissive environments and independent of host nation support and fixed facilities ashore. - Capability to overcome sea and littoral anti-access strategies to include around-the-clock protection of amphibious, Military Sealift Command (MSC) and logistics platforms. - Capable, mutually supporting and redundant counter mine warfare, anti-submarine warfare (ASW) and theater missile defense (TMD) on both land and sea. - Capability to conduct multi-dimensional forcible entry operations in the face of a robust anti-access strategy. o Capability to quickly build upon and integrate into joint forces already forward deployed. o Increase speed and survivability of amphibious, MPS and AAPS sealift and escort. o Enhance surface lighterage (survivability, range, speed and cargo capacity). o Enhance heavy vertical lift (survivability, range and speed). o Organic dry dock/wet well at sea linkage capability between MPS, AAPS and amphibious sealift. o Rapid at-sea arrival and assembly linkage of MPS/AAPS with Fly-In Echelons enabling the organization, assembly and employment of both first and second echelon forces from a forward sea base with the capability of forcible entry upon the littoral. o Enhanced counter-sea mine warfare capability to include in-stride counter mine capability w/ complementary/mutually supporting air, surface and sub-surface counter mine systems.
Command & Control/ Intelligence	- Redundant in-theater Joint C2 centers capable of directing and supporting joint air, sea, and land systems and providing immediate C4ISR capabilities to a Joint Task Force Commander. - Joint driven C4ISR network with common protocols, interfaces, multi-level security and "self-repairing" systems that are capable of over-the-horizon communications and quick integration w/ allies and coalition forces. - Integrated, collaborative mission planning and rehearsal systems. - Enhanced information warfare (IW) capabilities to deny and/or manipulate enemies C4ISR systems. - Enhanced global surveillance systems designed to produce better indications and warning as well as advanced lead-time for crisis response. - Enhanced information operation (IO) capabilities to increase the ability to identify unambiguous warning as well as enemy intent and locations. - Beyond line of-sight, secure tactical communications capability from the sea through the depth of the littoral battlespace.
Fires	- Capability to position and fire accurate, continuous and long-range air, surface and subsurface fire support in support of operations within the littoral and ashore. - Enhanced triad of complimentary systems (ground, air, maritime surface/subsurface) with increased range, accuracy, lethality and battle damage assessment (BDA). - Maritime fires network that responds to universals calls for fire and engages targets with the most appropriate fire support system. - Capability to conduct sea-borne tactical aviation operations as well as Joint aviation support functions for both fixed and rotary wing aircraft for extended periods of time. - Enhanced mobility of surface and ground fire support assets. - Distributed, networked and mutually supporting air, ground, surface and subsurface manned and unmanned platforms and units capable of a wide variety of offensive and defensive fires. - Standardized and containerized munitions to include like precision guided munitions (PGMs).
Sustainment	- Capability to conduct forward joint maritime logistics support, to include forward refueling, re-supply and maintenance. - Logistics nodes capable of supporting movement and integration of both pre-positioned and deployed equipment and supplies to required locations via sealift and airlift platforms.

Operational Function	*Sea Power 21* Principle Requirements & Capabilities
	- Capability to sustain and support – for operationally significant periods of time –Joint forces of both the first and second operational echelons with no need for host nation support or basing rights. - Capability to expand or contract over time with the arrival and/or departure of joint elements into and out of theater. - Joint standard design systems for re-supply and intermediate level maintenance. An at sea in-theater intermediate and selected depot maintenance and repair facilities capable of supporting deployed air, sea and land systems the first and second operational echelons. - Capability to support the rapid reinforcement of the initial operational echelons with heavy follow-on forces. - Expansion of amphibious, MPS and AAPS shipboard space; creation/enlargement of modular, multi-use spaces to enable at sea re-tailoring of forces and equipment for mission specific tasking. - Perfection of high-speed cargo handling systems to include systems capable of rapid "at-sea" cargo and personnel transfers from first and second echelon platforms to assault platforms.
Force Protection	- Capability to achieve and maintain sea control to include sea and air route security/escort from CONUS to objective while still maintaining a sizable and capable forward in-theater presence and capability. - Enhanced maritime self-defense capability against air, surface and subsurface threats. o Focus on building smaller more survivable and maneuverable amphibious and NSF ships. o Integrated area & theater missile defense capability that covers the depth of the littoral battlesapce. o Extension of maritime air defense area to cover the inland littoral battlespace. o Integration of Unmanned Air Vehicles (UAVs) and Unmanned Underwater Vehicles (UUVs). o Maritime platform signature manipulation/reduction. - In-transit protection of forces to theater of operations and from ship to objective. o Organic security capabilities for ARG, MPS and APS assets against air, surface and subsurface threats. o Chem-Bio protection of sea borne and forces ashore. o Assault platform and lighterage signature reduction/manipulation. o Anti-UAV and UUV detection /defense. o Enhanced Combat identification friend or foe (ID/IFF) capability for air, surface and subsurface realms.
Other	- Capability to conduct multinational and interoperable operations with allies and coalitions. - Integrate and build upon current Navy and Marine Corps platforms, technologies, systems and concepts where feasible. - Development of Joint Maritime Doctrine to include joint tactics, techniques and procedures

BIBLIOGRAPHY

Allen, K.W., Krumel, G.N. & Pollack, J.D. China's Air Force Enters the 21st Century. Santa Monica, CA: Rand, 1995.

Bartee, L. H., Jr. Possible U.S. Navy Responses to People's Republic of China Military Action Against Taiwan. Unpublished Research Paper, Ft Leavenworth, KS: U.S. Army Command and General Staff College, June 2000.

Bucchi, M., USN, & Mullen, M., VAdm, USN. "Sea Shield: Projecting Global Defense Assurance." U.S. Naval Institute Proceeding, Nov 2002, 56-59.

Buckley, J. J., China & Taiwan: A Different Focus for America's Strategic Future, Unpublished Research Paper, U.S. Naval War College, Newport, RI: Autumn 2002.

Cole, B.D. The Great Wall at Sea: China's Navy Enters the 21st Century, Annapolis, MD: Naval Institute Press, 2001

Clark, V. "USN, Projecting Decisive Joint Capabilities." U.S. Naval Institute Proceedings, October 2002, 54-58.

China, the United States, & Japan: Implications for Future US Security Strategy in East Asia, Conference Binder of Unpublished Essays for Center for Naval Analysis (CNA) 1997 Conference, Washington, DC: 30-31 October 1997.

Dawson, C. and Nathman, J. "Sea Strike: Projecting Persistent, Responsive, and Precise Power." U.S. Naval Institute Proceedings, December 2002, 32-41.

England, G. Naval Power 21 … A Naval Vision, Washington DC: Department of the Navy, October 2002.

England, G., Clark V., and Jones J., Naval Transformation Roadmap: Power & Access … From the Sea, Department of the Navy, Washington DC: Department of the Navy, 2001.

Friedman, George & Meredith, The Future of War: Power, Technology & American Dominance in the 21st Century, New York, NY: Crown Publishers, 1996.

Kien-hong Yu, Peter. Editor. The Chinese PLA's Perceptions of an Invasion of Taiwan, New York, NY: Contemporary U.S.-Asia Research Institute, October 1996.

Harmon, Neil, A. Russian Conventional Arms Transfers Since 1991: Implication For U.S. Naval Forces, Unpublished Research Paper, Naval Postgraduate School, Monterey, CA: [DTIC#ADA390105] March, 2001

Huges, W. Jr., "Take the Small Boat Threat Seriously", U.S. Naval Institute Proceedings, October 2000, 104-106.

Hume, Scott, F. Study of the Ability of the People's Republic of China to Conduct an Invasion of Taiwan, Unpublished Research Paper, U.S. Army School of Advanced Military Studies, U.S. Army Command and General Staff College, Ft Leavenworth, KS: [DTIC#ADA381809], May 2000.

Jane's Sentinel Security Assessment. China and North East Asia -- Issue Ten. Alexandria, VA: Jane's Information Group, 2002

Johnson, J.L., Forward … From the Sea: The Naval Operational Concept, Chief of Naval Operations, Washington, DC: Department of the Navy, March 1997.

Joint Chiefs of Staff, Joint Deployment and Redeployment Operations, Joint Pub 3-35. Washington, DC: 7 Sept 1999.

Meconis, C.A., & Wallace, M.D. East Asian Naval Weapons Acquisitions in the 1990s: Causes, Consequences and Responses, Westport CT: Praeger, 2000.

Moore, C. & Hanlon, E. "Sea Basing: Operational Independence for New Century." U.S. Naval Institute Proceedings, January 2003, 80-85.

Nair, V.K. Lancer Paper #3, War in the Gulf: Lessons for the Third World, New Delhi, India: Lancer International, 1991.

Nemets, A and Torda, T., The PLA Navy: From 'Green Water' to 'Blue Water'—Part I & II, July 2002, www.newsmax.com/achives/articles/2002/7/25/161633.shtml, [accessed on 6 April 2003].

O'Hanlon, Michael, "Why China Cannot Conquer Taiwan." International Security, Volume 25, No. 2, Fall 2000, 51-86.

Pillsbury, Michael, Chinese Views of Future War, Washington, DC: National Defense University Press, March 1997.

Pillsbury, Michael, Dangerous Chinese Misperceptions: The Implications for DOD, Washington, DC: The Office of Net Assessment, 1997.

United States Marine Corps Concept Paper, Advanced Sea Basing … 2020 and Beyond: A Strategic Concept for the Conduct of Sea Based Power Projection in the 21st Century, Unpublished Research Paper, MCCDC, Quantico, VA: November 1997.

Weeks, D., "A Combatant for the Littorals," U.S. Naval Institute Proceedings, November 1999, 22-30.

Wood, Piers M. and Ferguson, Charles D., "How China Might Invade Taiwan," Newport, RI: Naval War College Review, Autumn 2001, 55-66.

Yung, Christopher D., People's War at Sea: Chinese Naval Power in the Twenty-First Century, Alexandria, VA: Center for Naval Analysis, (CRM 95-214), August 1997.

Zalamea, U.O. "Eagles & Dragons at Sea: The Inevitable Collision Between the US and China." Newport, RI: Naval War College Review, Autumn 1996, 62-74.

NOTES

[1] For simplicity and clarity, when this paper refers to the PLA or the Chinese "maritime" capabilities, this includes all Chinese forces that can project power over water – including not only PLA naval forces (PLAN), but also parts of their army (PLA), land based air (PLAAF), as well as ballistic and cruise missiles.

[2] For a detailed discussion on why the PRC is considering the use of force to reunify Taiwan and that America's response will be the employment of force to counter, see James Buckley, "China & Taiwan: A Different Focus for America's Strategic Future" (Unpublished Research Paper, U.S. Naval War College, Newport, RI: 2002), 1-17.

[3] In this light, it is also incorrect to conclude that China has ruled out non-military means to accomplish this goal. To the contrary, at least presently the PRC would certainly prefer to pursue diplomatic approaches to achieve reunification, rather than have to resort to the use of military force. See Buckley, 5-8.

[4] Today, RSO&I forms the critical link between deployment and employment of forces in a theater. It is the re-assembling of unit personnel and materiel deploying to theater into mission-capable forces. The overarching objective of RSO&I is to build mission capable forces as quickly as possible from offload points of debarkation to employment destination as re-assembled mission capable forces. See Joint Chiefs of Staff, Joint Deployment and Redeployment Operations. Joint Pub 3-35. (Washington, DC: 7 Sept 1999), III-32-33.

[5] While there has yet to be a significant amount written on Sea Power 21, what has been written lacks viable substance and direction. Further, the articles and documents published on Sea Power 21 all assume the U.S. military will maintain a qualitative advantage indefinitely and advanced military technologies will *not* become more diffuse. See Gordon England, Secretary of the Navy, "Naval Power 21….A Naval Vision." Department of the Navy, Washington DC: October 2002, 1-5; Vern Clark, " Projecting Decisive Joint Capabilities." U.S. Naval Institute Proceedings, (October 2002): 54-58; Mike Bucchi, and Mike Mullen, "Sea Shield: Projecting Global Defense Assurance." U.S. Naval Institute Proceeding, (Nov 2002): 56-59; Culter Dawson & John Nathman, "Sea Strike: Projecting Persistent, Responsive, and Precise Power." U.S. Naval Institute Proceedings, (December 2002): 32-41; and Charles Moore & Edward Hanlon, Jr., "Sea Basing: Operational Independence for a New Century." U.S. Naval Institute Proceedings,(Jan 2003): 80-85.

[6] Though a Sino-American conflict over Taiwan would involve all of the Services, one can reasonably argue the lead component and main effort would undoubtedly be the maritime component.

[7] While a detailed analysis comparing PLA, Taiwanese and American force structures, platforms and weapon systems are certainly important, due to the restriction of keeping the text of this paper limited to 17 pages, a detailed analysis cannot be within this paper's scope. However, for a detailed analysis and comparisons on these forces see Jane's Sentinel – Security Assessment, China and Northeast Asia, Issue 10 (UK: 2002), 113-126.

[8] Even while the paper's assessment and comparisons remain at the operational level, the conclusions this paper reaches come as a result of a detailed analysis/comparison of the PLA's current and planned systems derived from Jane's Sentinel, 3-137; Bernard D. Cole, The Great Wall at Sea: China's Navy Enters the 21st Century. (Annapolis, MD: Naval Institute Press 2001), 96-112; Charles Meconis and Michael Wallace, East Asian Naval Weapons Acquisitions in the 1990s: Causes, Consequences, and Responses. (Westport, CT: Praeger 2000), 140-150; and several other minor sources to include Alexander Nemets and Thomas Torda, The PLA Navy: From 'Green Water' to 'Blue Water'—Part I & II, July 2002, www.newsmax.com/achives/articles/2002/7/25/161633.shtml, [accessed 6 April 2003].

[9] The PLA's procurement objectives will ultimately be determined by China's future economic growth and capabilities. See Jane's Sentinel, 127-132.

[10] Peter Kien-hong Yu, The Chinese PLA's Perception of an Invasion of Taiwan. (New York: Contemporary U.S. – Asia Research Institute, October 1996), 12.

[11] The majority of the points listed were derived from Meconis and Wallace, 144-139 and Cole, 157-178.

[12] Since the end of the Cold War, there have been more fighter development activities in China than anywhere else in the world. See Jane's Sentinel, 114-115.

[13] Combined these enhancements and acquisitions are greatly advancing China's submarine technology, and will likely soon change the naval balance in the Western Pacific. Some analysts speculate China's nuclear-powered attack submarines will be used to conduct long range patrols to interdict U.S. Sea-LOCs, conduct blockade missions and operations against surface warships. The PLA's large diesel force will be tasked with inserting special operations troops, covert mining, and merchant blockade missions. See Cole, 139.

[14] Consistent with this theme, large-scale training exercises have been conducted regularly in recent years in which mechanized, airborne, and naval infantry units moved rapidly by transport aircraft, helicopters, rail, ship, and wheeled vehicles to concentrate against hypothetical trouble spots. See Cole, 145.

[15] In the early 1990s the PLA began to create rapid reaction units known as "Fist Units" which are smaller, better equipped and more mobile than the basic PLA ground units. The purpose and design of these new elite units is for quick response to regional crisis. Similar to the German Storm-trooper units of World War I, Fist Units have been established in each of China's combined army groups and are likely the model force for other units within their respective army groups. At present, Fist Units are the vehicles for developing new tactics and doctrine, and the means for testing new ideas for the PLA at large. These new units are being formed based on adapted Western experiences to meet specific needs. In the near future, it is anticipated they will become the training cadres for the rest of the PLA. See Jane's Sentinel, 74.

[16] While there is a great deal of speculation with regards to the amount the PRC allocated to its annual defense expenditures, one thing is for certain: the spending and emphasis on military modernization continues to enhance the PLA's maritime power projection capabilities each and every year. Further, China's GDP has increased on average of 8.76% each year from 1995 to 1999. See Jane's Sentinel, 127.

[17] For a superb thesis on this subject, see Neil A. Harmon, "Russia Conventional Arms Transfers since 1991: Implications for U.S. Naval Forces." (Unpublished Master's Thesis, Monterey, CA: Naval Post Graduate School 2001, [DTIC product #ADA390105]), 41.

[18] Jane's Sentinel, 113-126.

[19] The process of 'reverse engineering' involves importing a small number of sample advanced weapons or platforms, taking systems apart to determine how they work, developing design specifications for a prototype model, constructing the equipment and physical plant to produce this model, training the technicians, testing and evaluating the prototype, and then mass producing the system. See Christopher D. Yung, People's War at Sea: Chinese Naval Power in the Twenty-First Century, CRM 95-214 (Alexandria, VA: Center for Naval Analysis August 1997), and Jane's Sentinel, 117.

[20] There are some analysts who speculate that the direction of the PLA Navy (PLAN) indicates that Chinese military planners are putting emphasis on weapons and strategies to counter American naval forces in Asia, especially American aircraft carriers. This provides an explanation for why China's naval research and development ventures consist primarily of developing and improving their anti-ship missiles, air defense systems, submarine warfare systems, and electronic countermeasure systems. For instance, the PLAN continues to improve its anti-submarine warfare (ASW) and anti-air warfare (AAW) capabilities of its surface fleet. China's interest in purchasing cheap but deadly anti-ship guided missiles is one of the largest threats to the U.S. maritime forces and, as a result, would be an ideal weapon within any anti-access strategy. See Meconis and Wallace, 144-149 and Jane's Sentinel, 116-119.

[21] Meconis and Wallace, 141.

[22] The U.S. also depends heavily on foreign merchant ships to carry troops, munitions, equipment and supplies because America has insufficient strategic air and sealift. See Michael Pillsbury, Dangerous Chinese Misperceptions: The Implications for DOD. (Washington DC: The Office of Net Assessment, 1997), 17.

[23] With the exception of possibly fighter and attack aircraft, since the 30,000 American servicemen in Korea are actively engaged in ongoing operations, it is unlikely that U.S. forces stationed there will redeploy in response to a Taiwan crisis.

[24] Many foreign nations such as Japan, Korea and Singapore might require prior consultation before approving U.S. military strikes originating from their countries. Moreover, some analysts even speculate the Japanese elite might completely forbid the forward deployment of U.S. forces on Japan. To many Japanese, the 1995 rape incident on Okinawa has yet to be fully resolved. At least for the present, as far as the number of forward deployed forces on Japan are concerned, the number will certainly not exceed the current 70,000 Air Force, Navy and Marine personnel. To rectify this situation, some have pointed to other locations such as Singapore and Vietnam for forward staging bases. With just a bit of study, however, these ideas have far more political baggage and are far more difficult than they first appear. At least at this point one planning assumption should be made: places like Japan, Korea and Singapore should not be blindly relied on in a future crisis. Some nations might not want to be identified as enemies of China as a result of willingly supporting the U.S. In the minds of many in the region, two things weigh heavy: (1) China's power and influence is growing and they will forever stay within the region; (2) How long the U.S. will maintain a significant presence within the region is uncertain.

[25] W. Huges, "Take the Small Boat Threat Seriously." U.S. Naval Institute Proceedings, October 2000, 104-106.

[26] Cole, 185-189.

[27] Yu Guangning quoted in U.O. Zalamea, "Eagles & Dragons at Sea: The Inevitable Collision Between the US and China." Naval War College Review, (Fall 1996): 70.

[28] Buckley, 4.

[29] Zeng Liang-ping, as quoted in John Zeng, The PLA Thinking About an Invasion in the Year 2000, in Peter Kien-hong Yu, 139-140.

[30] Some analysts speculate that the direct route in attacking Taiwan is the most likely PLA option. This concept is flawed, however, as it conflicts w/ the PLA's theories of war. For the argument in favor of the direct option where the PLA attacks Quemoy, Matsu and Peng Hu Islands first and then attacks across Taiwan's heavily defended west coast, see Piers M. Wood and Charles D. Ferguson, "How China Might Invade Taiwan," Naval War College Review, (Autumn 2001): 55-66.

[31] For a detailed Taiwan terrain analysis see Scott F. Hume, Study of the Ability of the PRC to Conduct an Invasion of Taiwan, (Unpublished Research Paper, Ft Leavenworth, KS US Army Command and General Staff College 2000) 29-33.

[32] The Jiashan Air Base is Taiwan's most critical military facility, and is likely identified by the PLA as Taiwan's operational center of gravity. It is located at Hualien on the northern coast and is the largest, most protected, most sophisticated and modern underground airbase in the Western Pacific. Built into the mountains it protects over 200 of Taiwan's most advanced fighter aircraft. As a result, it is likely that it would be one of the key targets and objectives of the PLA. Disabling the Jiashan runways is critical if the PLA is to achieve air superiority, thus substantial resources will be devoted to its destruction. See Peter Kien-hong Yo, Jiashan Air Force Base: Taipei's Last Trump Card, in Kien-hong Yu, 271-272.

[33] The PLA will likely target Taiwan's interior road and rail networks prior to the actual invasion to prevent the ROC Army from quickly shifting its forces on interior lines to counter the PLA landing so argues Zeng in Kien-hong, 143.

[34] Wen-cheng Lin in Kien-hong Yu, 189.

[35] Zeng in Kien-hong Yu, 148-149.

[36] The PLA has three airborne infantry divisions that are capable of airborne operations. See Jane's Sentinel, 74 and the Hume's unpublished thesis, 14.

[37] Taipei is the capitol of Taiwan and the seat to the ROC government. It is likely the PLA has identified this as Taiwan's strategic *center of gravity*.

[38] Some might argue that the presented PLA concept is nothing more than "mirror imaging" how the United States might conduct an invasion if the roles were reversed. This is certainly not the case. See thoughts and ideas in Kien-hong Yu as well as in V.K Nair, Lancer Paper #3 The Gulf War: Lessons for the Third World, (New Delhi, India: Lancer International, 1991), 224-229.

[39] Yossef Bodnasky as quoted in Zalamea, 70.

[40] While many analysts' opinions differ on this subject, by 2020 a reasonable estimate on PLA carrier capabilities conclude the PLAN will have three "pocket size" carriers capable of carrying 24 to 30 attack aircraft each. Accompanying the carriers will be the modern and capable surface escorts that the PLAN already has and is continuing to develop. See Jane's Sentinel, 117 and Hume, 18.

[41] See Cole, 165-166 for a detailed description of what General Liu Huaqing, Commander of the PLA Navy from 1982-1987, describes as an "offshore defense" and the use of the "first" and "second" island chains within this Chinese defensive concept. Also note the strategic significance Taiwan plays in this emerging maritime defensive concept.

[42] Innocuous looking trawlers outfitted for this specified task would best patrol these chokepoints. The disguise would make them far less vulnerable to naval and air attack.

[43] Clark, 55.

[44] George & Meredith Friedman, The Future of War: Power, Technology & American Dominance in the 21st Century, (New York, NY: Crown Publishers), 212.

[45] Planning thus far on Sea Power 21 has been a Navy-centric vision. While the Navy's Sea Power 21 working group does liaison with the other services from time to time, at present, they have no permanent representation from the Marine Corps, Army or Air Force.

[46] See Nair, 223-225. Attacking America's LOCs was a short-term successful tactic for the Iraqi forces in the early stages of Operation Iraqi Freedom. In the end, however, the concept was unsuccessful not because it was ineffective, but because the Iraqi forces were incapable of coordinating their efforts over the long-term. Still, for a short period the concept had a negative impact on the American's movement and maneuver. The lesson is American LOCs must be considered and adequately protected – whether they are on land, sea or in the air – as future adversaries will certainly attempt to exploit those that are left unprotected.

[47] The concept of "phased echelonment" is an accepted strategic practice within the DoD. See unpublished U.S. Marine Corps Concept Paper, "Advanced Sea Basing … 2022 and Beyond: A Strategic Concept for the Conduct of Sea Based Power Projection in the 21st Century," MCCDC, Quantico, VA: November 1997, 12-13.

[48] While China is an antiquated force, they are also clearly the largest military force in the world. When one begins to compare the relative combat power capabilities of America's first operational echelon with potential regional

threats such as the PLA, even conservative estimates conclude the U.S. forcible entry or "first echelon forces" will be severely outnumbered and as a result, will be rapidly overwhelmed regardless of the qualitative advantage of U.S. forces.

[49] The term "Naval Service" is intentionally used to include both the Marine Corps and the Navy. At present the Navy, for all intents and purposes, is independently developing its SeaPower 21 concept absent the integration of the other services. At the same time, the Marine Corps is developing its own "Marine Corps Strategy 21" in relative independence of the Navy. The linking of the two strategic concepts is the Secretary of the Navy's very thin "*Naval Power 21 ... a Naval Vision*" that was released in October 2002. If this trend continues, the achievements of *Sea Power 21* will not advance or synchronize the U.S. maritime force any better than the previous "From the Sea" and "Forward…From the Sea" concepts did.

[50] Several of the points and ideas listed within Appendix A were derived from a U.S. Marine Corps Concept Paper titled, "Advanced Sea Basing … 2022 and Beyond: A Strategic Concept for the Conduct of Sea Based Power Projection in the 21st Century," MCCDC, Quantico, VA: November 1997, 18.